

Geology of Bryce Canyon

Weathering and erosion shape these statuesque rock features, but unlike many places, flowing water plays only a minor role in this story. As snow and ice melt, water seeps into fractures. As it refreezes, it expands and cracks the rock around it. This process, called frost-wedging, happens often at Bryce Canyon.

the air rapidly warms—as much as 40°F from

About 180 days a year temperatures swing between freezing nights and warm afternoons. The combination of gravity and meltwater causes soil creep, moving stone fragments downhill. Summer rain further dissolves the limestone into a clay ooze and generates just enough flowing water to help remove the debris.

Before this area was full of hoodoos, it was full of water. Between 55 and 40 million years ago (mya), today's Utah was a mountain-encircled basin. For millions of years, rivers deposited sediments—mostly dissolved limestone—into a system of large lakes. As the Colorado Plateau began to rise, the lakes dried up and their mixtures of sediments became the muddy limestone called the Claron Formation.



Ancient lakes (above) waxed and waned in the region from 55 to 35 mya. The Claron Formation, composed of sediments that fell to the lake floors, can be seen in the park today. The park's oldest rocks, deposited 90 mya by an inland sea, lie unseen below the Claron.



Massive tectonic-plate activity from 20 to 15 mya began to push up a tremendous swath of Earth's crust. This eventually raised the region nearly two miles, to form the 130,000-square-mile Colorado

rest, not even for a day. This dynamic, mesmerizing place is like no other.

Steller's jay



Watchful eyes and good luck may reward you with wildlife sightings. Mountain lions and Great Basin rattlesnakes are secretive and not often seen. Nests of white-throated swifts

blend with the red rocks—but look up on Wall Street and you may spot them. Violet-green swallows wait out spring cold snaps by slowing their fast metabolism. Utah prairie

Utah prairie dog

Uinta

Mountain lior

dogs were listed as an endangered species in 1973, but protecting both them and their habitat improved their situation; in 1994 they were listed as a threatened species.

ZION CANYON GRAND CANYON Kaibab Plateau Chocolate Cliffs **BRYCE CANYON**

CANYON WALL OR FIN





HOODOO FORMATION Hoodoos don't grow like trees but are eroded out of the cliffs where rows of narrow walls form. These thin walls of rock are called fins. Frost-wedging enlarges

WINDOWS



cracks in the fins, creating holes or windows. As windows grow, their tops eventually collapse, leaving a column. Rain further dissolves and sculpts these limestone pillars into

HOODOO



oulbous spires called hoodoos. The delicate climatic balance between snow and rain ensures that new oodoos will emerge while others become reduced to lumps of clay.

STEPS THROUGH TIME Layers in rock are like the chapters in a huge history book that describe how Earth developed. Where can you read the only unabridged edition of the planet's history? Right here.

The Grand Staircase (above) is the world's most complete sequence of sedimentary rocks—formed over vast timespans as sediments built up in lakes, inland seas, swamps, deserts, and forests.

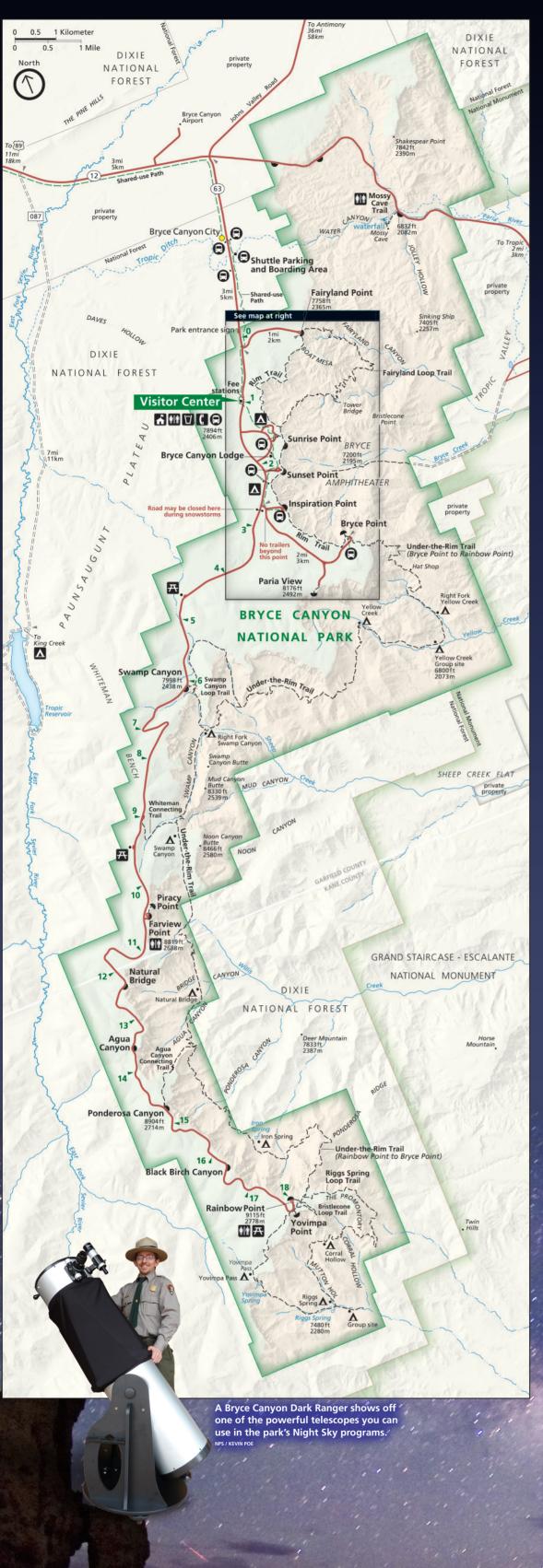
From Grand Canyon at the bottom of the staircase, through Zion Canyon in the middle, to Bryce Canyon near the top, this rock record recounts a history of 525 million years.

Elsewhere on Earth the geological sequences have been interrupted by uplift of mountain ranges or carving and scouring action by glaciers. In the Grand Staircase, however, very few gaps mar the sequence. Most chapters and even pages of this book are still intact.

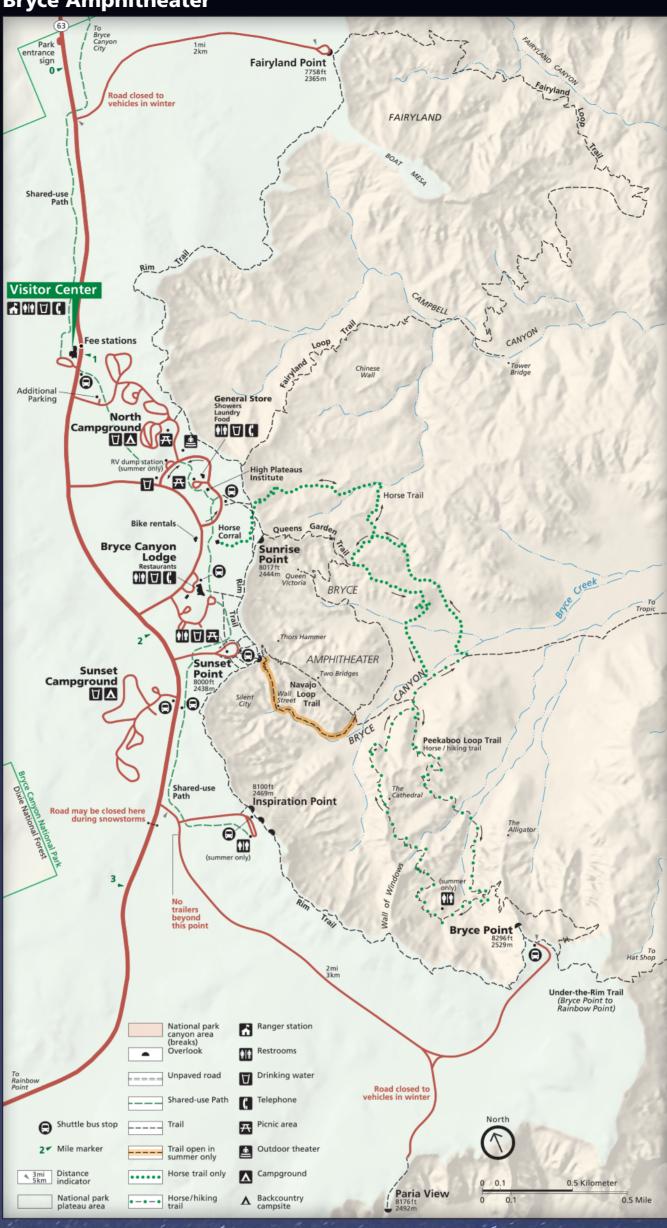
This does not mean you can stop just anywhere along the 100-mile-long Grand Staircase and see all 525 million years of this history. Earth's curvature will not let you do that.

As this illustration shows, the exposed cliff faces of the tilted rock formations look like a staircase. The pink cliffs at Bryce Canyon are the top step of the staircase.

Exploring Bryce Canyon



Bryce Amphitheater



VISITOR CENTER Start here for information, exhibits, a film, publications, backcountry permits, and emergency services. Open daily, with longer hours March to October; may close on some holidays. The park road follows the plateau rim for much of its 18 miles. In summer free shuttle buses serve the most popular facilities and overlooks. For more information or changes to hours, activities, and programs, check the park website or call 435-834-5322.

INTERPRETIVE PROGRAMS Rangers offer talks, evening programs, and guided walks year-round. Topics range from geology and wildlife to astronomy. Check at the visitor center for the full range of programs.

LODGING AND TOURS For information about the lodge, visit www.brycecanyonforever.com or call 435-834-8700. Year-round lodging is offered nearby. Sign up for horseback tours at the horse corral or contact Canyon Trail Rides: www.canyonrides.com, 425-670-8665

camping Over 200 RV and tent sites (fee) are available at North and Sunset campgrounds with water and restrooms nearby. North and Sunset Campground sites can be reserved May through October (dates vary). In winter, North Campground is first-come, first-served and Sunset Campground is closed. Neither campground has hookups. An RV dump station (fee) is near North Campground in summer. For reservations contact 877-444-6777, www.recreation.gov. A store near

Sunrise Point parking area sells food and supplies in peak season and has coin-operated shower and laundry facilities. Bring or buy firewood; gathering wood in the park is prohibited.

WALKING AND HIKING Over 65 miles of hiking trails offer close encounters with hoodoos. Trails start from overlooks along the main park road. Get details at the visitor center. Carry drinking water, wear hiking boots, and remember—your return is uphill! Overnight backpacking is allowed on the Under-the-Rim and Riggs Spring Loop trails only. Permits are required for overnight backcountry use (fee). Make reservations at the visitor center year-round or online at www.recreation.gov for March–November trips. For important information on permits and regulations, visit go.nps.gov/BryceBackcountry.

WEATHER From April through October, days are pleasant; nights are cool. Thunderstorms are common in summer. Winter days are brisk and bright. Most overlooks are open in winter.

ACCESSIBILITY We strive to make facilities, services, and programs accessible to all. Buildings, restrooms, many viewpoints, and the trail between Sunset and Sunrise points are wheelchair-accessible. Accessible campsites are available in summer. Service animals are allowed. For information go to a visitor center, ask a ranger, call, or check the park website.

Wildflowers of Bryce



Bronze evening primrose



Markagunt penstemor



Sego lily, Utah's state flower



Rock columbine



Scarlet gilia

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FOR YOUR SAFETY Steep drop-offs abound here; watch children closely and stay back from cliff edges.

• High elevations can be dangerous if you have heart or respiratory ailments. Know your limits—don't overexert!

• Wear hiking boots and watch your footing.

• Trails may be closed intermittently due to extreme weather or other hazardous conditions.

• During thunderstorms stay in your vehicle; avoid trees and open areas.

• Obey posted speed limits.

Drivers: Watch for animals, especially after dark.

REGULATIONS Pets must be attended and leashed. They are allowed on all PAVED surfaces—including overlooks and the trail between Sunset and Sunrise points—and in campsites and picnic areas. Pets are not allowed on any unpaved trails, on shuttle buses, or in public buildings. • Camp in designated campgrounds, build fires in grills, and picnic at designated areas. • Stay on trails; don't take shortcuts. Yield to horses. • Federal laws protect all natural and cultural features in the park; visit go.nps.gov/BryceRegulations. • For firearms regulations check the park website. • Hunting and trapping are prohibited. • All wheeled vehicles, even bicycles, must stay on paved roads or Shared-Use Path.

emergencies call 911 or park dispatch at 928-608-6300

Starry Night

High elevation, clean dry air, and lack of light pollution make Bryce Canyon one of Earth's darkest places. With our Dark Rangers' help, Bryce Canyon offers you ultimate stargazing. High-quality darkness is ablaze with starlight. On moonless nights the Milky Way looks like a huge silvery rainbow from horizon to horizon. Venus and Jupiter are so bright they create shadows.

Powerful telescopes reveal the new stars inside nursery nebulae, shock waves from exploded stars, and ancient globular clusters that seem like diamonds on black velvet. Millions of light years beyond, but reached by our telescopes, other galaxies of all shapes and sizes inspire the imagination. Making the most of a bright full moon, our Dark Rangers offer guided night hikes among the moonlit hoodoos. Bryce Canyon is the perfect place to see why astronomy fascinates so many people. Use our website to plan your stellar visit.

MORE INFORMATION Bryce Canyon National Park PO Box 640201 Bryce, UT 84764 435-834-5322 www.nps.gov/brca

Follow us on social media.
Use the official NPS App to guide your visit.

Bryce Canyon is one

National Park System. Learn more at www.nps.gov.

of over 400 parks in the

Park Foundation

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